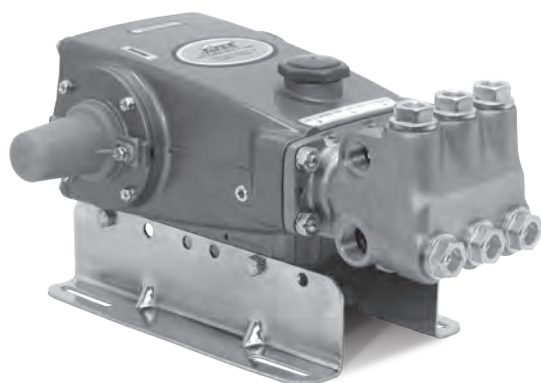


DATA SHEET

15 FRAME PLUNGER PUMP



Standard **650**
Brass Model:



Model 650 Shown
(Rails sold separately)

FEATURES

- Triplex design delivers high efficiency and low pulsation.
- Durable V-Packings are lubricated and cooled by pumped liquid.
- Pre-set Lo-Pressure Seals provide secondary protection against external leaks and require no packing adjustment.
- Special high-density, polished, concentric plungers provide a true wear surface and extended seal life.
- Standard NBR seals with alternative options for temperature and chemical compatibility.

SPECIFICATIONS	U.S. Measure	Metric Measure
Flow	7.0 gpm	27 lpm
Pressure Range	100–3000 psi	6.9–207 bar
Pump RPM*	1000 rpm	1000 rpm
Inlet Pressure Range	–5 to +60 psi	–.35 to +4.1 bar
Max. Liquid Temp. (NBR)	160° F	71° C
Alternative seals available for high temperature up to 200° F		
Bore	0.787"	20 mm
Stroke	1.181"	30 mm
Crankcase Capacity	42 oz.	1.26 l
Inlets Ports (2)	3/4" NPT(F)	3/4" NPT(F)
Discharge Ports (2)	1/2" NPT(F)	1/2" NPT(F)
Pulley Mounting	Either Side	Either Side
Shaft Diameter	1.181"	30 mm
Weight	44 lbs	19.9 kg
Dimensions	16.28 x 12.99 x 6.44"	413.5 x 330 x 163.5 mm

ALTERNATIVE SEAL CONFIGURATION

MATERIAL	SUFFIX CODE	MAXIMUM TEMPERATURE	
NBR	—	160° F	(71° C)
FPM	.0110	180° F	(82° C)
EPDM	.0220	160° F	(71° C)
IPFE	.0770	200° F	(93° C)
HT	.3000	180° F	(82° C)
STHT	.3400	190° F	(88° C)

See Reference Document 99REF017 for inlet conditions and RPM at high temperature.

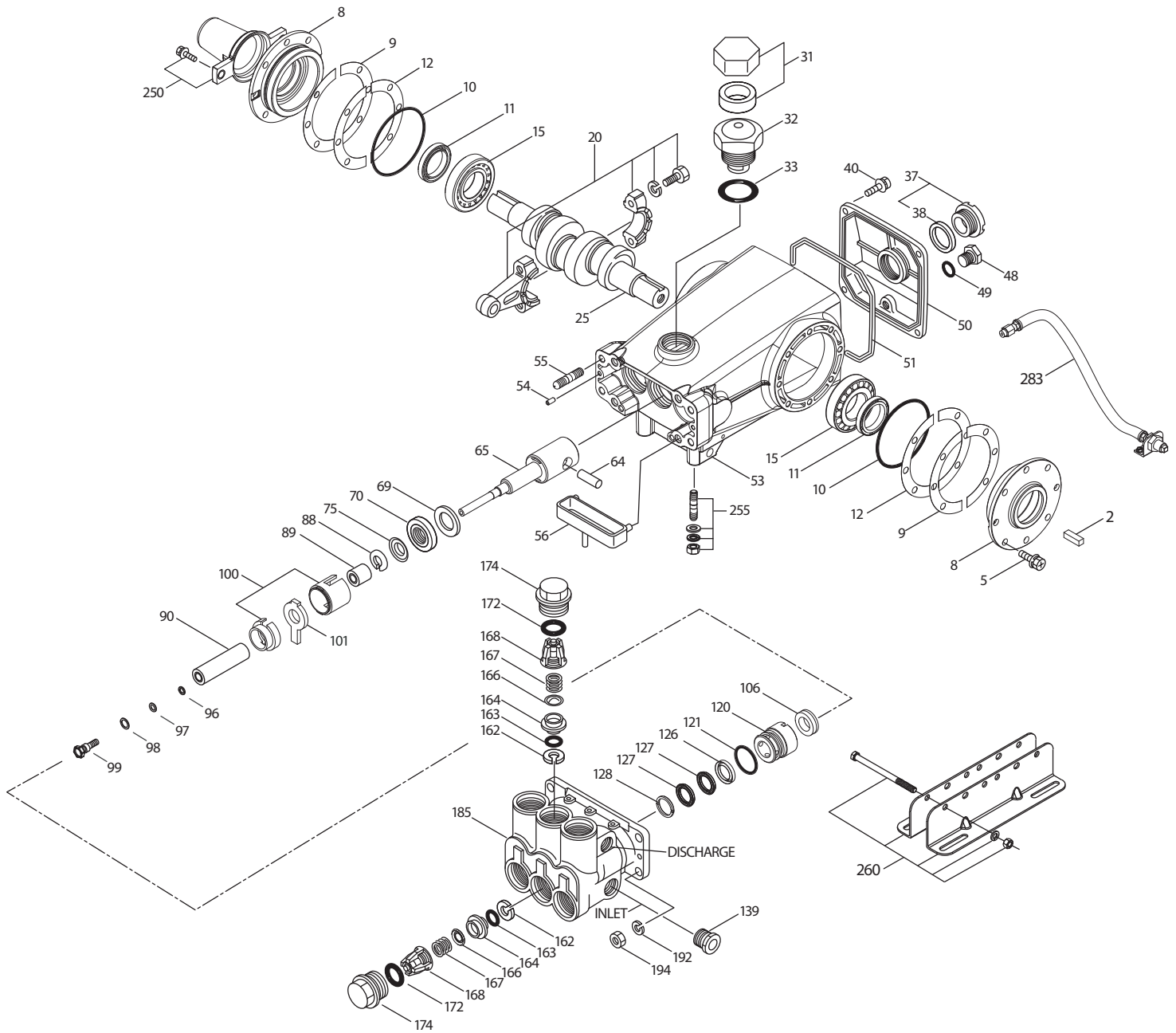
DETERMINING THE PUMP R.P.M.	Rated gpm	=	"Desired" gpm
	Rated rpm	=	"Desired" rpm
DETERMINING THE REQUIRED H.P.	Hp (Electric Brake)	=	$\frac{\text{gpm} \times \text{psi}}{1460}$
	DETERMINING MOTOR PULLEY SIZE	$\frac{\text{Motor Pulley O.D.}}{\text{Pump rpm}}$	= $\frac{\text{Pump Pulley O.D.}}{\text{Motor rpm}}$

Refer to pump **Service Manual** for repair procedure and additional technical information.

PARTS LIST

ITEM	P/N	MATL	DESCRIPTION	QTY
2	30067	STL	Key (M8x7.5x25)	1
5	126540	STCP R	Screw, HHC (M8x20) (See Tech Bulletin 128)	8
8	134805	ALE	Cover, Bearing (See Tech Bulletin 108, 128)	2
9	855043	FBR	Split Shim, Bearing Cover, 2 Pc. (See Tech Bulletin 128)	2
10	11340	NBR	O-Ring, Bearing Case - 70D	2
11	43495	NBR	Seal, Oil, Crankshaft - 70D	2
12	855044	S	Split Shim, Bearing Cover, 2 Pc. (See Tech Bulletin 128)	2
15	39060	STL	Bearing, Roller	2
20	48600	TNM	Rod Assy, Connecting [11/00]	3
25	43494	FCM	Crankshaft - Dual End (M30)	1
31	828710	PE	Protector, Oil Cap w/Foam Gasket	1
32	43211	ABS	Cap, Oil Filler	1
33	14177	NBR	O-Ring, Filler Cap - 70D	1
37	92241	PC	Gauge, Oil, Bubble w/Gasket - 80D	1
38	44428	NBR	Gasket, Flat, Oil Gauge - 80D	1
40	126541	STCP R	Screw, Sems HHC (M6x20)	4
48	25625	STCP	Plug, Drain (1/4"x19BSP)	1
49	23170	NBR	O-Ring, Drain Plug - 70D	1
50	133576	ALE	Cover, Rear (See Tech Bulletin 118, 128)	1
51	44834	NBR	O-Ring, Rear Cover - 70D	1
53	134836	ALE	Crankcase w/Guide Pins (Incls: 54, 55) (See Tech Bulletin 118, 128)	1
54	27488	S	Pin, Guide	2
55	126545	STCP R	Stud (M10x45) (See Tech Bulletin 128)	4
56	44664	POP	Pan, Oil	1
64	43507	CM	Pin, Crosshead	3
65	43501	SZZ	Rod, Plunger	3
69	126592	STCP R	Washer, Seal	3
70	43500	NBR	Seal, Oil, Crankcase - 80D	3
75	43506	S	Slinger, Barrier	3
88	45675	S	Washer, Keyhole	3
89	43505	BB	Spacer, Plunger	3
90	43300	CC	Plunger (M20x77)	3
96	43235	PTFE	Back-up-Ring, Plunger Retainer	3
97	17399	NBR	O-Ring, Plunger Retainer - 80D	3
	14160	FPM	O-Ring, Plunger Retainer - 80D	3
	◆ 46204	EPDM	O-Ring, Plunger Retainer - 70D	3
98	45891	CU	Gasket, Plunger Retainer	3
99	104360	S	Retainer w/stud, Plunger (M5)	3
100	855001	POP	Retainer, Seal (See Tech Bulletin 098)	3
101	43508	—	Wick, Long Tab	3
106	† 44071	NBR	Seal, LPS w/SS-Spg	3
	44381	FPM	Seal, LPS w/SS-Spg	3
	701974	SFTB	Seal, LPS w/NIH-Spg	3
120	49291	BB	Case, Seal [07/05]	3
121	14762	NBR	O-Ring, Seal Case - 70D	3
	11737	FPM	O-Ring, Seal Case - 75D	3
	◆ 46205	EPDM	O-Ring, Seal Case	3
126	43515	BB	Adapter, Female [01/04]	3
127	† 44607	STG	V-Packing	6
	44386	FPM	V-Packing	6
128	43517	BB	Adapter, Male	3
139	20326	BBCP	Plug, Inlet [3/4" NPT(M)]	1
162	43248	PTFE	Back-up-Ring, Seat	6
163	43249	NBR	O-Ring, Seat - 80D	6
	44383	FPM	O-Ring, Seat - 70D	6
	◆ 46206	EPDM	O-Ring, Seat - 70D	6
164	43722	S	Seat	6
166	43721	S	Valve	6
167	43751	S	Spring	6
168	44564	PVDF	Retainer, Spring	6
172	17617	NBR	O-Ring, Valve Plug - 90D	6
	11691	FPM	O-Ring, Valve Plug - 90D	6
	◆ 46207	EPDM	O-Ring, Valve Plug - 70D	6
174	43850	BB	Plug, Valve	6
185	45975	NAB	Head, Manifold	1
192	126231	STCP R	Lockwasher (M10)	4
194	126522	STCP R	Nut, Hex (M10)	4
250	855046	NY	Protector, Shaft w/2 Screws (See Tech Bulletin 128)	1
255	30264	STZP	Kit, Direct Mount	1
260	30613	STZP R	Assy, Rail	1
	990550	STZP R	Assy, Rail for Diesel/Gas	1
	76513	STZP R	Assy, Rail	1
269	30206	F	Pulley (10") (A/B)	1
274	30059	STL	Hub, "H" (M30)	1
283	34334	—	Kit, Oil Drain (3/8"x24")	1
299	814561	BB	Head, Complete w/NBR Seals and O-Rings	1

EXPLODED VIEW



Model 650
October 2019

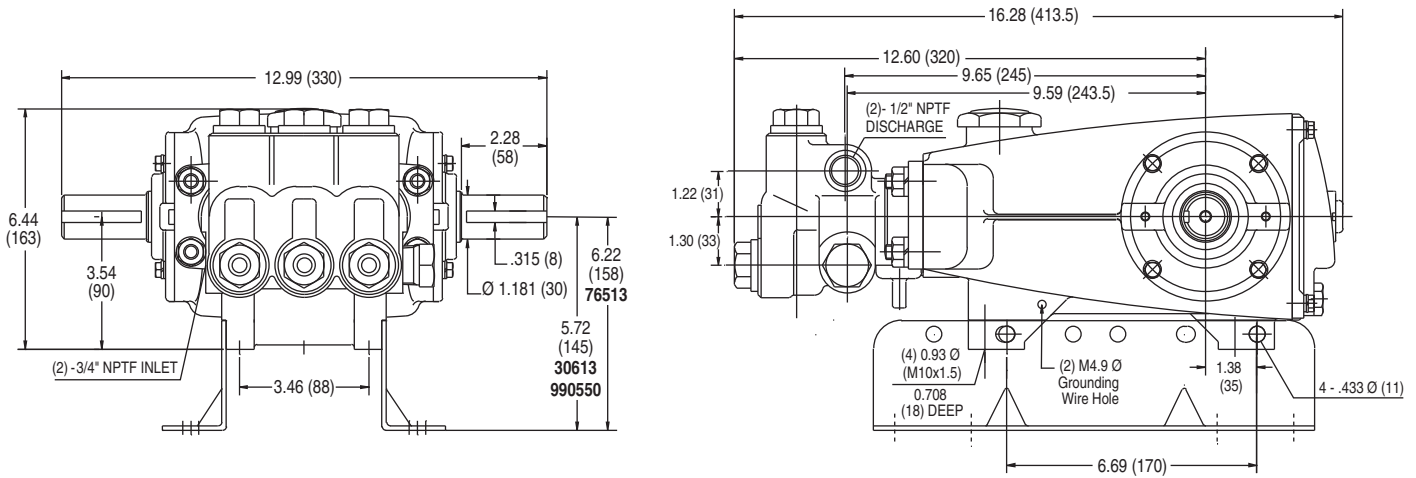
ITEM	P/N	MATL	DESCRIPTION	QTY
300	30798	NBR*	Kit, Seal (Incls: 97,100,106,121,127) – Standard	1
	31033	FPM	Kit, Seal (Incls: 97,100,106,121,127) – .0110	1
	◆ 33919	EPDM*	Kit, Seal (Incls: 97,100,106,121,127) – .0220	1
310	30820	NBR	Kit, Valve (Incls: 162,163,164,166,167,168,172) – Standard	2
	31263	FPM	Kit, Valve (Incls: 162,163,164,166,167,168,172) – .0110	2
	◆ 31259	EPDM	Kit, Valve (Incls: 162,163,164,166,167,168,172) – .0220	2
350	30696	STZP	Plier, Reverse	1
351	33006	STZP	Socket, Seal Case 1/2" Drive	1
	6107	—	Oil, Bottle (21 oz.) ISO 68 Hydraulic (Fill to specified crankcase capacity prior to start-up)	2

Italics are optional items. ◆ Silicone Oil/Grease required. † Production parts different from service parts.

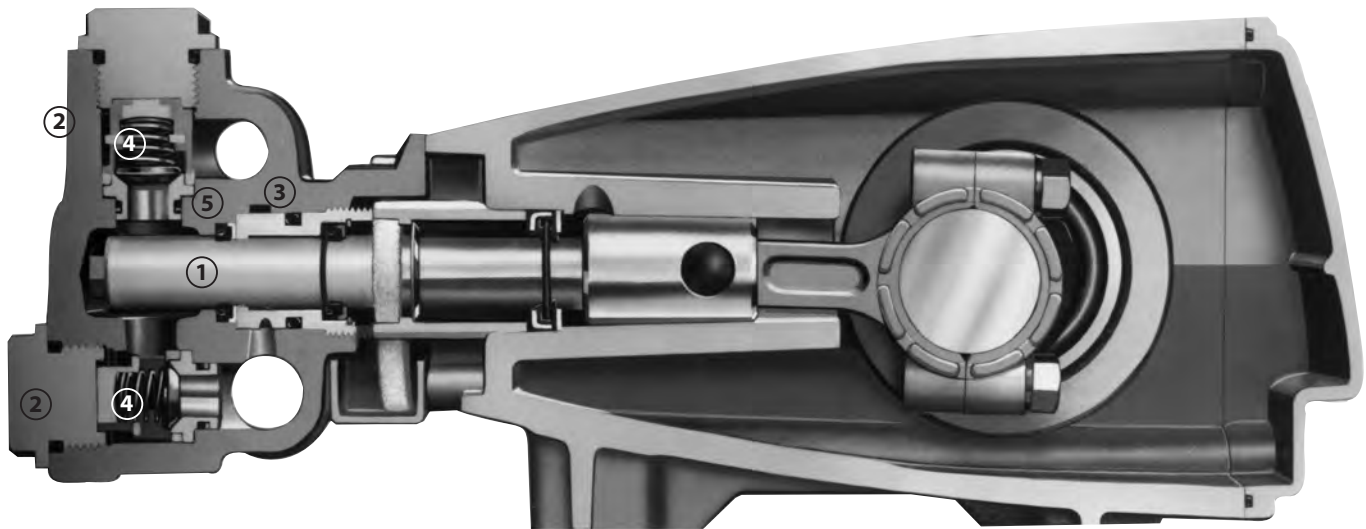
[] Date of latest production change. R Components comply with RoHS Directive.

See Tech Bulletins 024, 027, 035, 036, 043, 045, 048, 049, 052, 053, 062, 074, 083, 098, 118 and 128 for additional information.

MATERIAL CODES (Not Part of Part Number): ABS=ABS Plastic ALE=Aluminum Epoxy BB=Brass BBCP=Brass/Chrome Plated CC=Ceramic
CM=Chrome-Moly CU=Copper EPDM=Ethylene Propylene Diene Monomer F=Cast Iron FBR=Fiber FCM=Forged Chrome-Moly FPM=Fluorocarbon
NAB=Nickel Aluminum Bronze NBR=Medium Nitrile (Buna-N) NY=Nylon PC=Poly Carbonate PE=Polyethylene POP=Polypropylene
PTFE=Pure Polytetrafluoroethylene PVDF=Polyvinylidene Fluoride S=304S SSFTB=Special Blend PTFE Black STCP=Steel/Chrome Plated
STG=Special Blend PTFE White STL=Steel STZP=Steel/Zinc Plated SZZ=304SS/Zamak TNM=Special High Strength



Model 650



- | | | |
|--|---|---|
| <p>1 Special concentric, high density, polished, solid ceramic plungers provide a true wear surface and extended seal life.</p> <p>2 Manifolds are a high tensile strength bronze for long term, continuous duty and corrosion resistance.</p> | <p>3 100% wet seal design adds to service life by allowing pumped liquids to cool and lubricate on both sides.</p> <p>4 Stainless steel valves, seats and springs provide corrosion-resistance, ultimate seating and extended life.</p> | <p>5 Specially formulated, Cat Pump exclusive, V-Packing offer unmatched performance and seal life.</p> |
|--|---|---|

⚠ CAUTIONS AND WARNINGS

All High-Pressure Systems require a primary pressure regulating device (i.e. regulator, unloader) and a secondary pressure relief device (i.e. pop-off valve, relief valve). Failure to install such relief devices could result in personal injury or damage to pump or property. Cat Pumps does not assume any liability or responsibility for the operation of a customer's high-pressure system.

Read all CAUTIONS and WARNINGS before commencing service or operation of any high-pressure system. The CAUTIONS and WARNINGS are included in each service manual and with each Accessory Data Sheet. CAUTIONS and WARNINGS can also be viewed online at www.catpumps.com/cautions-warnings or can be requested directly from Cat Pumps.

WARRANTY

View the Limited Warranty on-line at www.catpumps.com/warranty.